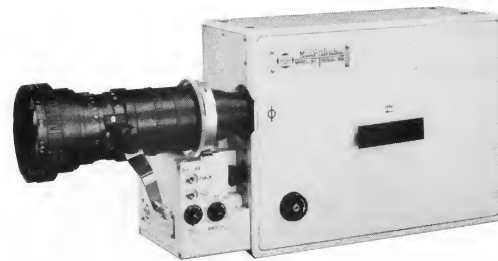
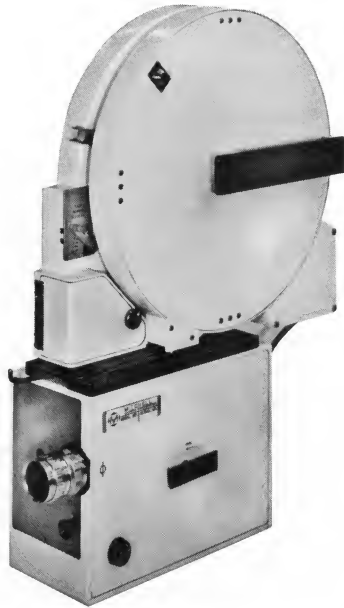


Mitchell Monitor Series model HS-16-E4 16mm cameras and accessories

Note below

PRICE LIST



SERIES 500

The Mitchell Monitor Series 16mm 500 Camera is capable of operating and will produce steady pin registered cine photography within a variable frame rate range of 6 to 500 frames per second. The camera will accept an internal 400 foot film load wound on daylight load spools and provision is made for the installation of a 1200 foot coaxial film magazine. Other standard features of the Mitchell Monitor Series 16mm 500 are listed in the Features column.

Price of camera with carrying case, less lens . . . \$6,575.00

SERIES 600

The Mitchell Monitor Series 16mm 600 Camera is capable of operating and will produce steady, pin registered cine photography within a variable frame rate range of 6 to 600 frames per second. The camera is identical to the Model 500 in all physical respects but does contain a precision adjusted movement and appropriate gearing which enables the camera to be operated at the higher frame rate of 600 frames per second. For a complete list of standard features in the Model 600, see Features column.

Price of camera with carrying case, less lens . . . \$6,815.00

FEATURES OF THE BASIC MODEL 500 AND MODEL 600 CAMERAS:

Which are included in list prices

Frame rates adjustable in one frame increments. A self-locking control wheel is provided in the camera to set desired frame rate. Electrical connector installed for remote frame rate adjustment, frame rate programming and ON/OFF control.

Digital frame rate indicator is a built-in feature.

Camera supplied with internal dual voltage motor for operation with any of the following power sources:

- a. 120 volts AC 50 to 1000 cycles single phase
- b. 120 volts DC
- c. 28 volts DC

Camera supplied with integral through the lens reflex type focusing and boresight system. This standard optical viewing system can be used only when the camera is not operating and the reflex mirror is selected into viewing position. If continuous reflex viewing is desired while the camera is in operation, an alternate reflex system is available and can be factory installed (reference—"Optional Features"). The continuous reflex system is required for Conex automatic iris control and TV unit; however, viewing only at standstill is provided with Conex unless otherwise specified.

Camera supplied with variable shutter which is completely adjustable from 6° to 120°.

Camera is fitted to accept external film magazines.

Built-in film footage counter provided (resetable four digit type).

End-of-film cut-off switch built-in camera.

Camera fitted with "C" type lens mounts (1 inch—32).

Dual timing lights utilizing two N.E. 2J neon lamps built in film transport. (Alternate lamps available—Reference "Optional Features").

Power connector supplied with camera.

Prices quoted are net F.O.B. Glendale, California, exclusive of applicable Federal Excise Taxes and are subject to change without notice. Prices prevailing at time of shipment apply.



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OPTIONAL FEATURES AVAILABLE FOR MODEL 500 AND MODEL 600 CAMERAS:

	Unit Price
Fiducial Marks in Aperture Plate	\$ 55.00
Shutter Correlation system which produces synchronized mid-shutter pulse	500.00
Heater and thermostat control for camera (dual voltage, 200 watts)	225.00
Heater and thermostat control for 1200 foot external film magazine, (dual voltage, 250 watts)	280.00
Reflex viewfinder for continuous reflex viewing while camera is operating	
(if purchased when camera manufactured	100.00
(if purchased and installed on existing customers' cameras)	650.00
Modification to camera to allow installation of Conex	
(if purchased when camera manufactured)	625.00
(if purchased and installed on existing customers' cameras)	850.00
Special lens mounts	On Request
Special camera motors	On Request
Alternate timing lights such as NE-51H can be installed on special order	On Request

ACCESSORIES FOR MODEL 500 AND MODEL 600 CAMERAS:

Coaxial 1200 foot external film magazine HS-16EM12 and carrying case (complete with quick release mount less heaters)	\$3,333.00
Extra take-up compartment for 1200 foot magazine	750.00
Remote hand-held frame rate control single speed range HRC-16E4	440.00
Remote hand-held frame rate control dual speed range HRC-2S-16E4	750.00
Conex II automatic iris control AIC-16E4 (lenses to be equipped with gear ring, camera to be equipped with continuous reflex optical system). Price does not include cost of Conex installation on camera or camera lenses	2,100.00
Camera carrying case (aluminum) CC22065	95.00
Coaxial 1200 foot film magazine carrying case (aluminum) CC22321	133.00

ACCESSORIES CONTINUED:

	Unit Price
Right angle boresight attachment RAB-16E	325.00
Quick release mount for camera QRM-16	185.00
Data display unit HS-16E4P	On Request
Puppet Timing System	On Request
TV Camera unit HS-16E4T	On Request
Remote Footage Counter Output	145.00
Fully Variable Power Viewing System for Monitor #38741 7.5x to 15x range (2 to 1 ratio)	
(if purchased and installed on existing customers' camera by Mitchell)	450.00
(Retrofit Kit for installation on existing camera by customer)	425.00
(if purchased when camera manufactured)	225.00

LENSES FOR MODEL 500 AND MODEL 600 CAMERAS:

Most "C" mounted lenses can be used with the Mitchell Monitor Series 16mm Models 500 and 600 Cameras. Schneider TV Vidicon lenses, Type A and B are specially designed for remote control and are ideally suited for the Conex II Automatic Iris Control AIC-16E4:

Lens Type	Type A (Focusing Mount)	Type B (Fixed Focus Mount)	Conex Gear Ring Mounting Cost
Angenieux f2.8 Zoom lens (15-150mm)	\$790.00		\$135.00
Angenieux f2.8 Zoom lens (12-120mm)	780.00		150.00
Cinegon 10mm f1.8 Schneider	175.00	\$143.00	100.00
Xenon 16mm f2.0 Schneider	110.00	88.00	100.00
Xenon 25mm f1.4 Schneider	120.00	94.00	100.00
Xenon 50mm f2.0 Schneider	120.00	95.00	100.00
Xenon 75mm f2.8 Schneider	100.00	80.00	100.00
Tele Xenar 100mm f2.8 Schneider	160.00	130.00	100.00
Tele Xenar 150mm f4 Schneider	150.00	120.00	100.00

Note: Other Special Lenses will be quoted upon request.

*One gear ring fits all Schneider lenses and may be interchanged by user if desired.

Prices quoted are net F.O.B. Glendale, California, exclusive of applicable Federal Excise Taxes and are subject to change without notice. Prices prevailing at time of shipment apply.



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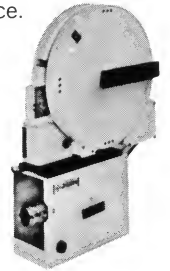
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Mitchell Monitor series 16mm camera

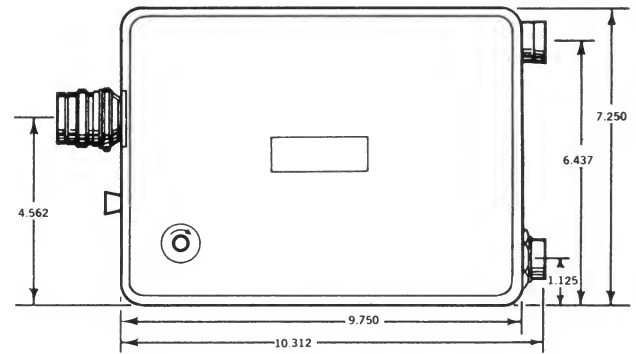
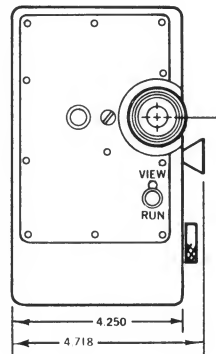
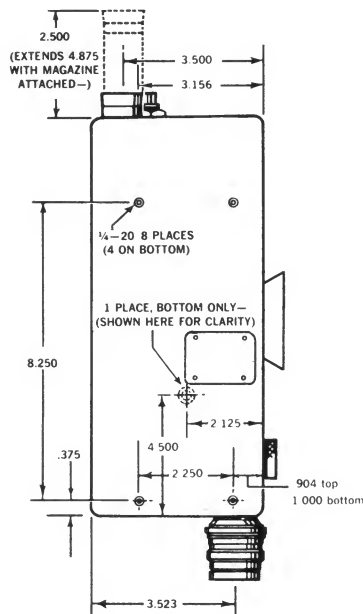
For all precision-motion photo instrumentation projects—the most reliable, sophisticated high-speed reflex camera in the world.



Mitchell HS-16E4 Monitor 16mm cameras offer many unique, new features to the instrumentation photography field. Not only are they exceptionally fast, but also they are human-engineered for extremely easy use, service, and maintenance. Both models (500 and 600) have 400-foot internal capacity and convert quickly to accept a 1,200-foot external magazine featuring a breakaway take-up chamber that permits removal of exposed footage only. Standard Monitor features include:



- Frame rates from 6 fps up to 500 or 600 fps
- Dual registration pins for highest degree of steadiness
- Variable speed control (by 1-frame increments if needed)
- Integral reflex boresighting without film removal
- Universal motor — no motor changing, less down-time
- Integral shutter adjustable from outside of camera
- Remote or programmed operation for stop, start, speed-change
- Modular construction for simplicity of maintenance and service



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MONITOR 16MM SERIES SPECIFICATIONS

Camera Body: Cast aluminum with integral midrib.

Frame Rates and Rate Selection: Any speed between 6 fps and maximum selectable—during camera operation or at standstill—by external, digitized dial that locks positively. Maximums are 500 or 600 fps, depending on model, with speed control constant within $\pm 1\%$ or 1 fps, whichever is greater.

Input Voltages: Universal motor uses either 28 VDC or 120 (+5, -10) VAC-DC, 50 to 1,000 cycles standard. Bendix Pygmy connectors for power supply and remote, programmed control.

Power Requirements: At 600 fps with standard integral film load: 16 amp (20 amp surge) at 28 V; 4.5 amp (6 amp surge) at 120 V. At 600 fps with 1,200-foot magazine: 18 amp (22 amp surge) at 28 V; 6 amp (7.5 amp surge) at 120 V. Note: Values decrease at lower frame rates.

Film Transport: Movement is modular, dynamically balanced, intermittent type, with double pin registration for both horizontal and vertical positioning. Timing of pins and pull-down claws keep film captive at all times.

Film Path: Tandem feed sprocket guides film into movement in same plane as aperture. This feature and the dual register pins eliminate film weave even under G-loads.

Boresight: Integral reflex boresight permits through-the-lens framing and focusing without disturbing film load or removing film transport. *NOTE:* Standard viewing system can be used only when camera is *not* operating. Continuous system, for reflex viewing with camera in operation, can be factory-installed as an optional feature.

Shutter: Balanced rotary disc type, adjustable from outside of camera from 0° to 120° equally about apex; timing is not affected by changing shutter angle.

Timing Lights: Two NE-2J neon. (Alternates available.)

Footage Counter: Resettable digital type, visible from rear of camera.

Runout Switch: Shuts off control voltage and stops camera at film's end or if film breaks.

Film Supply and Take-Up Mechanisms: Supply spool mounts on disc equipped with demand brake to prevent overrun when slowing or stopping camera. Multiple disc clutch controls take-up spool; output is varied by cam actuated by tension roller. Film tension stays constant throughout run.

Lens Mount: Standard "C" mount (1"-32 pitch).

Tripod Socket: $\frac{3}{8}$ "-16 steel insert in body, with $\frac{1}{4}$ "-20 removable adaptor bushing.

Environmental Characteristics: Operates from -65° to 150° F with heaters, in 95% humidity; at altitudes to 60,000 feet.

Accessories and Options: 1,200-ft. coaxial magazine; timing display system; quick-release mount; TV camera unit (for through-the-lens monitoring during operation or at standstill); correlation pulse system; hand remote speed control; footage counter switch (one switch closure per foot of film exposed); continuous reflex viewing system; custom automatic speed control; RFI filter (120 VAC); carrying cases; heaters; and Conex (automatic iris control).

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Mitchell Monitor series 16mm Conex

A unique automatic iris system that assures extremely precise exposure control for critical high-speed instrumentation photography.



The Conex (controlled exposure) is a high-precision, automatic iris controlling unit designed for use with the Mitchell Monitor 16mm photographic recorders. Installation of the Conex is a factory operation; the recorder must be modified with a front mounting plate, minor wiring changes, and a special light-sensing system. Among the Conex's unique features, some of them used for the first time in instrumentation camera work, are the following:

- Behind-the-lens photo cell
- Response speed of approximately six iris stops per 0.25 second
- Automatic adjustment for camera speed variation from 6 to 600 frames per second
- No computations required for operating the unit
- Provision for remote control of ASA input for exposure compensation
- Automatic compensation for variations in iris ring calibration (nonlinear and linear iris rings)
- Auxiliary drive unit, for turning iris rings on extremely long focal length lenses

MONITOR CONEX SPECIFICATIONS

External Adjustments: For shutter angle and film speed (25 to 1,600 ASA).

Test Switch: For introducing hypothetical frame rate for checking before camera operation.

Mechanical Actuation: Positive gear drive between servo-controlled drive motor and lens ring.

Input Voltages: Same as for HS-16E4 Monitor series camera — 28 VDC, 115 VDC, or 115 VAC, 50 to 1,000 cycles standard.

Operating Current: 0.25 ampere.

Surge Current: 1.0 ampere.

Stand-by Current: 0.05 ampere.

Limit Control: Conex furnished with override clutch and limit stops.

Viewing: Normal modification retains standard Monitor viewing mode (using beamsplitter instead of mirror) for use only when camera is *not* operating. Continuous system, for reflex through-the-lens viewing with camera in operation, can be factory-installed as an optional feature.

Lens Accommodation: The Schneider TV Vidicon lenses, type A and B, are designed for remote control and are ideally suited for Conex operation. These Vidicon systems are optically identical to Schneider 16mm cine lenses, with each lens tested electronically for contrast and resolving power. They are vibration proof to eight Gs; temperature stabilized from -20° to 65° C; and have uniform diaphragm control. Lenses recommended for Conex use include:

Schneider f/1.8 — 10mm

Schneider f/2.0 — 16mm

Schneider f/1.4 — 25mm

Schneider f/2.0 — 50mm

Schneider f/2.8 — 75mm

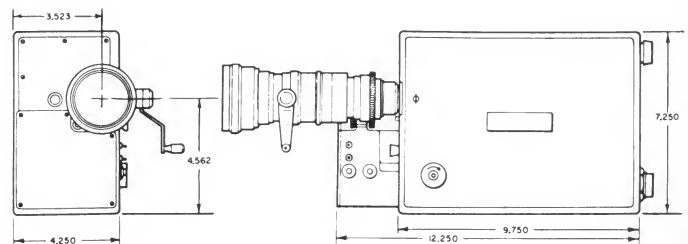
Schneider f/2.8 — 100mm

Schneider f/4.0 — 150mm

Angenieux f/2.8 — 15-150mm zoom

Angenieux f/2.8 — 12-120mm zoom

Most other "C" mount lenses can also be fitted to Conex use.



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